ABSTRACT OF THE DISCLOSURE

AUTOMATED SCALABLE AND ADAPTIVE SYSTEM FOR MEMORY ANALYSIS VIA ONLINE REGION EVOLUTION TRACKING

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A method for determining how a region of a data structure in an application evolves comprises the steps of: periodically traversing selected subgraphs of the region in the running application; location structural changes in the subgraphs; using these structural changes to describe, characterize, and identify changes to the region as a

10 whole; and reporting the region changes to an analysis agent. Determining how a region of a data structure evolves is a continuous and adaptive process. The process is made continuous and adaptive through several methods, including: identifying a set of desired updates; adjusting the period in between traversals based on whether the desired updates have been witnessed; and adjusting the frequency of sampling any one

15 traversal based on whether that traversal has detected desired updates. Additionally, the method comprises updating qualitative and quantitative characterizations of the regions under analysis based on structural changes to the regions as whole.